Sufficiency Assessment Report - Response to Comments Matrix
Portland Harbor Superfund Site, Swan Island Basin Project Area
Portland, Oregon

#	Reference No.	Document Location/ Topic	EPA Comment (9/27/2021)	SIB Response (11/11/2021)	EPA Comment on SIB Response (12/17/2021)
General Comments on the Draft Sufficiency Assessment Report					
The following are the U.S. Environmental Protection Agency's (EPA's) comments on the Draft Sufficiency Assessment Report Revision 4 (SAR), prepared by HydroGeoLogic, Inc. (HGL) on behalf of the Swan Island Basin (SIB) Remedial Design Group and dated June 2021. The SAR is a deliverable prepared for the SIB Remedial Design Group under the Administrative Settlement Agreement and Order on Consent (ASAOC), CERCLA Docket No. 10-2021-001, executed between EPA and the SIB Remedial Design Group.					
1	1276	Identification of Recontamination Potential Chemicals (RPCs)	The stated approach for identifying RPCs is screening existing surface sediment data against Portland Harbor Superfund Site (PHSS) Record of Decision (ROD) (EPA 2017) cleanup levels (CULs). While the surface sediment screening process/approach may be utilized, it does not remove the need to screen data from all media (e.g., surface sediment, subsurface sediment, groundwater, stormwater, and riverbanks) against ROD criteria to identify sources that may pose a recontamination threat. EPA requests that all available sediment, riverbank soil, groundwater, and stormwater data be screened against the applicable ROD Table 17 CULs as modified by the 2019 ESD and the 2020 Errata #2 memorandum, and ROD Table 21 Remedial Action Levels (RALs) and principal threat waste (PTW) thresholds. Upon receipt of data generated to fill data gaps identified in the SAR, the updated SAR should identify contaminants of concern (COCs) in each of the relevant upland sources (direct discharges, groundwater, riverbank soil, and overwater pathways) and clearly discuss the magnitude of exceedances of screening criteria as the basis for the relative significance of recontamination pathways.	Understand and agree with the comment. The updated SAR will identify COCs in each of the relevant upland sources. The discussion in Section 2 will be expanded to consolidate the information describing the screening of data from all media. Much of that information is currently included in the draft SAR but distributed among multiple sections. The following COCs were identified as recontamination potential contaminants (RPCs) in sediment: arsenic; mercury; PCBs; dioxins/furans; pesticides (dieldrin, DDx, and total chlordane); BEHP; and diesel-range petroleum hydrocarbons (Section 2 of the draft SAR). Historical stormwater, stormwater solids, groundwater, and riverbank soil data was evaluated in Section 6 and Appendix E of the draft SAR. Depending on the public or private outfall basin, COCs that exceeded stormwater CULs included, arsenic, copper, zinc, BEHP, cPAHs, PCBs, and/or dioxins and furans, where analyzed. Arsenic, cadmium, copper, lead, mercury, zinc, pesticides, PCBs, and/or TPH-Dx exceeded the riverbank soil/sediment CULs. Detected concentrations of arsenic, cadmium, copper, lead, mercury, zinc, PCBs, and/or total PAHs exceeded the riverbank soil CULs. Arsenic, cadmium, copper, lead, mercury, zinc, and cPAHs exceeded groundwater CULs. The in-water surface sediment data was screened in Section 2 of the draft SAR.	The response is mostly acceptable. The revised SAR should clearly discuss the magnitude of exceedances of screening criteria as the basis for the relative significance of recontamination pathways. EPA recommends further interpreting any CUL exceedances in the context of RDGC, Appendix C Table 3: RAO Monitoring. The table shows how EPA will assess progress toward achieving RAOs using pathway-specific PRGs and spatial scales during long-term monitoring. This information should be used to determine whether ongoing sources that exceed CULs have the potential to impede or delay attainment of RAOs. Note that RAL and PTW threshold exceedances are evaluated on a discrete basis.
2	1277	Proceeding with Remedial Design	The Draft SAR concludes that additional investigation and source control measures (SCMs) are necessary to complete remedial design (RD) and proceed with remedial action (RA). Per the SIB Remedial Design Group's ASAOC Statement of Work (SOW) Section 3.1(a), the objective of the SAR is to "evaluate upland (direct discharges, groundwater, riverbank, overwater) and in-water sources of contaminants to determine whether they have been adequately investigated and sufficiently controlled or considered such that the RA can proceed." RD is expected to proceed according to the schedule in SOW Section 6.2 regardless of the findings in this assessment. The SAR should be revised to remove statements about RD not proceeding as they are inconsistent with the ASAOC SOW.	The language in the SAR will be amended to clarify that RD will proceed according to the ASAOC SOW schedule.	The response is acceptable pending EPA's review of the revised SAR.
3	1278	Recontamination Via City of Portland Outfalls	Several sections of the Draft SAR conclude that the primary potential contamination pathway to the river is stormwater. In particular, stormwater drainage via City of Portland (City) outfalls is identified as the primary recontamination pathway, despite Oregon Department of Environmental Quality (DEQ) conditional source control decision for City outfalls (DEQ 2021). DEQ's analysis indicates stormwater in the basin has improved as a result of source control measures implemented within the City outfalls drainage basins. Statements in the Draft SAR regarding stormwater being the primary recontamination pathway are premature given the planned data collection effort and should be reserved until additional data are generated and evaluated using a lines of evidence approach. For instance, evaluating apparent concentration gradients in sediment (i.e., evaluation of data presented in Figures 3-6 through 3-33) may provide a line of evidence for assessing recontamination potential from direct discharges.	The draft SAR will be updated to note that direct discharges, including those from public and private outfall basins, are considered a potential recontamination pathway to SIB that will be further evaluated as part of the Pre-Design Investigation (PDI) Work Plan.	The response is acceptable pending EPA's review of the revised SAR.
4	1279	Source Control Status for Stormwater	Clarification for the reasoning behind the source control status assigned to individual sites should be provided in the SAR. There are many upland facilities with a source control status of "C" in Table 4-1 and Figures 4-1 through 4-3 of the SAR. SOW Section 3.1(c)(10) describes the conclusions and recommendations for the "C" outcome as follows: "Sources not sufficiently assessed or controlled: the report recommends that specified area of sediment cleanup not proceed until additional controls have been implemented and assessed for effectiveness." Source control status should be assigned with consideration of potential for recontamination and the need for implementing additional controls before RA. Data gaps in stormwater characterization should be filled and these conclusions updated upon receipt of the results.	The revised SAR will include an expanded description of the rationale for determining source control status. Sites were assigned "C" status if (1) there was a pathway to SIB, (2) that pathway had not been assessed, (3) no data was available to assess sufficiency of stormwater system cleaning, (4) concentrations in stormwater and/or riverbank soil were greater than CULs, and/or (5) a site was adjacent to RAL or PTW exceedances in sediment.	The response is mostly acceptable pending EPA's review of the revised SAR. The expanded description of the rationale for determining source control status should include discussion of the potential for recontamination and the need for implementing additional controls before RA can proceed. Any data gaps in stormwater characterization should be identified in the SAR. The revised SAR should update the source control status based on the new stormwater data collected during the PDI.
5	1280	Characterization of Riverbanks	Per Appendix D of EPA's Remedial Design Guidelines and Considerations (RDGC) (EPA 2021), chemical characterization of riverbanks is required regardless of the erodibility of the riverbank. Characterization of contamination in the riverbank should be based on a conceptual site model to ensure that all erodible and nonerodable pathways (e.g., areas of potentially leachable contaminants) have been sufficiently assessed. See Specific Comment on Section 9.2.	The SOW for the riverbank characterization was updated in the September 2021 Stormwater and Riverbank Assessment and Sampling Plan and Section 4.4 of the PDI Work Plan, and is consistent with Appendix D of the RDGC.	The response is acceptable pending EPA's review of the revised SAR.

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6	1281	Recontamination Assessment	Recontamination is assessed after remediation to determine if the PHSS ROD Table 17 CULs, as modified by the ESD and the Errata #2 memorandum, are exceeded in the appropriate media over an appropriate time and spatial scale. EPA will evaluate recontamination as part of the five-year review process under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Superfund Amendments and Reauthorization Act (SARA). The SAR should clarify that recontamination will be assessed during five-year reviews and that all Table 17 CULs will be evaluated to determine progress toward achieving remedial action objectives (RAOs) throughout the SIB Project Area.	The language in the SAR will be amended in all appropriate locations to clearly state that potential recontamination will be evaluated by EPA as part of the Five-Year Review process under CERCLA and SARA. During this review process, all Table 17 CULs will be evaluated to determine progress toward achieving RAOs throughout the SIB Project Area.	The response is acceptable pending EPA's review of the revised SAR.
7	1282	SEDCAM Model	The SEDCAM model is one line of evidence but should not be the sole line of evidence to assess recontamination potential. As with any numerical model, SEDCAM model results are limited by the ability to develop representative model input parameters. Given that the model is 1-dimensional and assumes steady state conditions, the model does not account for the variable or ephemeral contaminant loading conditions that would be expected for various pathways to the project area. Areas such as the mouth of the SIB that are relatively dynamic may require a more rigorous modeling approach to fully represent contaminant settling and subsequent resuspension, and to more accurately predict RPC concentrations. In addition, SEDCAM is limited in its ability to consider multiple pathways to and from the project area that occur over varying scales and overlapping footprints. As indicated in specific comments on Appendix A, several SEDCAM model input parameters are sensitive and have the potential to affect the model's ability to accurately predict future surface sediment concentrations. To improve the outcome of recontamination potential evaluations, additional lines of evidence are required to assess the likelihood and/or magnitude of potential recontamination as well as sensitivity analyses for the SEDCAM model inputs. Additional lines of evidence may include: (1) physical evidence (e.g., bathymetric change and sedimentation rates); and/or (2) chemical evidence (e.g., sediment trap data, contaminant core profiles, and water column contaminant concentrations). These could be used either directly or assessed to develop a conceptual site model to support decision-making given the known limitations of the proposed SEDCAM modeling approach. Revise the text to discuss the limitations of the SEDCAM model and how the associated uncertainties in assessing recontamination potential will be addressed via a broader SEDCAM analysis and multiple lines of evidence. See also comments on Appendix A.	We agree that SEDCAM is only one line of evidence and that model results need to be interpreted in the context of model limitations, other empirical data, and the conceptual site model (CSM). SEDCAM only allows use of constant values for the rate of deposition and the contaminant concentration in settling sediments and short-term variability in these values is not captured in the model. However, given that recontamination will be modeled over a period of 30+ years, use of longer term, average deposition rates and contaminant concentrations are appropriate. Uncertainty related to this approach will be evaluated by performing sensitivity analysis. SEDCAM can accommodate loading from multiple pathways by simply quantifying the expected contaminant and sediment mass loading to a given area for each complete pathway to develop composite sediment and contaminant loading rates. Hydrodynamic and sediment transport modeling will be used to develop the composite sediment and contaminant loading rates to a given area. For example, the loading rates within an outfall footprint may include contributions from stormwater discharge, overwater releases, and loading from upriver sources that would be used to develop composite sediment and contaminant loading terms. Different SEDCAM models will be developed to represent different depositional areas depending on the sediment contributions from various sources. Text will be revised to discuss limitations of SEDCAM and the need to evaluate multiple lines of evidence.	The response is mostly acceptable pending EPA's review of the revised SAR. The revised SAR should clearly discuss limitations and uncertainties for each parameter used, particularly SEDCAM inputs generated by other models.
8	1283	Datums	The SAR and future remedial design deliverables should reference to a single vertical datum. As written, various sections of the SAR reference different vertical datums, including the National Geodetic Vertical Datum of 1929 (NGVD29), the North American Vertical Datum of 1988 (NAVD88), Columbia River Datum (CRD) and the City of Portland datum (COP).	The revised SAR will be updated to include only reference to NAVD88 vertical datum, and RD deliverables will reference NAVD88.	The response is acceptable pending EPA's review of the revised SAR.
9	1284	Use of Data Not Approved by EPA	All data used in remedial design deliverables should come from the Portland Harbor Environmental Data Portal and not from databases compiled in other sources or reports (e.g., Kleinfelder 2015). The SAR states that data not approved by EPA were used only qualitatively but does not describe how. Revise the text to clarify. If these data are used in figures, they should be differentiated from EPA-approved data.	Note that the text states "SIB RD will use the data only qualitatively." The text will be revised to clarify and define qualitative use of the data. Specifically, the text will specify that qualitative use means the data was only noted and considered as context for interpreting approved data. The definition of qualitative use in this case is more about the exclusion of this data from any quantitative analyses or determinations. For example, data from these unapproved data sets was not used to develop figures for the SAR or in analyses presented in the SAR (e.g., surface weighted average concentrations [SWACs]).	The response is acceptable pending EPA's review of the revised SAR.
10	1285	Tracking of Recontamination Sources	Future iterations of the SAR should provide an explanation on how potential recontamination sources will be tracked, re-assessed and addressed, if appropriate, during subsequent phases of the project (i.e., design, construction, or monitoring of the remedy) such that ongoing, new, or previously unidentified sources are sufficiently investigated and controlled.	The revised SAR will include an explanation of how potential recontamination sources will be tracked, re- assessed, and addressed, if appropriate, during subsequent project phases.	The response is acceptable pending EPA's review of the revised SAR.
11	1286	Seismic Effects	The SAR and forthcoming RD documents should consider how seismic events might impact recontamination from both an upland and in-water standpoint. Revise the discussion to include an assessment of these additional factors.	We concur with the recommendations in this comment. The PDI Work Plan includes a seismic assessment that would address the potential for recontamination from both upland and inwater effects of a seismic event. The SAR text will be revised and amended to be consistent with the seismic analysis proposed as part of the PDI Work Plan.	The response is acceptable pending EPA's review of the revised SAR.
12	1287	Revisions to PDI Work Plan	Review of the SAR identified the need for additional sampling that should be incorporated into the PDI Work Plan. Specifically, sediment data appear to be lacking in some areas of the SIB, such as the dry dock area. This area should be targeted for characterization in the PDI Work Plan. Sediment under structures should also be characterized, as described in the Specific Comment on SAR Section 6.4.	We performed a review of existing sediment data, planned sediment data, and overwater structures in SIB. The largest overwater structure areas displayed in the 'dock_structures.shp' shapefile from the PHC Portal are along the innermost wall of the Dry Dock Basin. Similar to Pier A, there are no accessible sediments to sample under this part of the Dry Dock Basin; a cellular vertical sheet pile wall extends along this border, except for a small gap that is already sampled and targeted as a core location in this RD work. The inside of Berth 311 included one grab sample location in the Draft Final Field Sampling Plan (FSP), and now includes two new targeted core locations in grid cells B28 and B29 shown on Figure 4-4 of the FSP. Other overwater structures in SIB have either existing sample data in close proximity, or new samples targeted nearby in the FSP. An additional 13 cores have been added in the Dry Dock Basin area and along the northeast shore of SIB to target subsurface data gaps, shown on Figure 4-4 of the FSP.	The response is acceptable pending EPA's review of the revised PDI Work Plan.

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Specific Comments on the SAR					
1	1288	Executive Summary (ES) Section ES 4.2 Potential Upland Sources of Contamination, last bullet, page ES-4	This bullet includes the following statement: "Data collected during the PDI that could impact the source control status of these sites will be incorporated into the final SAR." Include this text and clearly state the rationale for the PDI to be completed before finalizing the SAR at the beginning of the SAR ES and SAR Section 1.0 Introduction or Section 1.1 Purpose and Scope.	The referenced bullet in ES Section 4.2 will be revised to clearly state the rationale for the PDI to be completed before finalizing the SAR and will be included at the beginning of the SAR ES as well as the SAR Section 1.0, Introduction and/or Section 1.1, Purpose and Scope.	The response is acceptable pending EPA's review of the revised SAR.
2	1289	Section 1.3 Portland Harbor Superfund Site Record of Decision Requirements for the Project	Revise the text to clarify that in addition to RALs identified in ROD Table 21, PTW thresholds provided in ROD Table 21 will be used to define areas of active remediation.	The text will be revised as follows: In addition to RALs identified in ROD Table 21, PTW thresholds provided in ROD Table 21 will be used to define areas of active remediation.	The response is acceptable pending EPA's review of the revised SAR.
3	1290	Section 1.3 Portland Harbor Superfund Site Record of Decision Requirements for the Project Area, page 1-3	Revise the text to clarify that future maintenance dredging is not a remediation technology but is a site region defined in the PHSS ROD.	The text in Section 1.3, Portland Harbor Superfund Site Record of Decision Requirements for the Project Area, will be revised to clearly state that maintenance dredging is not a remediation technology but is used in the PHSS ROD to designate areas where the remedy must provide for future maintenance dredging to occur.	The response is acceptable pending EPA's review of the revised SAR.
4	1291	Section 1.4 Integration of In-River CERCLA Remedy and Upland Source Control Program, page 1-3	The second paragraph discusses DEQ's authority to identify and control upland sources of contamination to Portland Harbor. Revise the text to clarify that source control authority has been transferred to EPA for select sites, including the U.S. Coast Guard Facility and the US Navy and Marine Reserve Center.	The text in Section 1.4 will be revised to indicate that ODEQ's authority to identify and control upland sources of contamination to Portland Harbor has been transferred to EPA for select sites including the U.S. Coast Guard Facility and the U.S. Navy and Marine Reserve Center.	The response is acceptable pending EPA's review of the revised SAR.
5	1292	Section 2.1 Screening Approach, page 2-1	Revise the RPC screening to screen data from all media (e.g., surface sediment, subsurface sediment, groundwater, stormwater, and riverbanks) against ROD criteria to identify sources that may pose a recontamination threat. See General Comment 1.	See the response to General Comment 1 (Comment ref # 1276). The discussion in Section 2 will be expanded to consolidate the screening of data from all media. Specifically, the screening described in Section 6 will be incorporated into the Section 2 discussion, and COC sediment maps in Appendix B will be added to Section 2.	The response is acceptable pending EPA's review of the revised SAR.
6	1293	Section 2.1 Screening Approach, page 2-2	This section identifies two sampling data submittals applicable to the project area that will soon be submitted to EPA for approval, and states that if these datasets are approved, they will be used for RD but not for this report. EPA notes that these data submittals have been received and review comments have been transmitted to the SIB Remedial Design Group. EPA requests that future versions of the SAR incorporate new EPA-approved data applicable to the project area.	Comment noted. The two referenced data submittals will be incorporated into figures and analyses in the final SAR.	The response is acceptable pending EPA's review of the revised SAR.
7	1294	Section 2.2 Screening Process, page 2-2	The mouth of the SIB is a relatively dynamic transition zone that determines the extent of mixing between the main channel and the interior of SIB. Figure 2-1 shows some sediment data are available at the mouth of the SIB in proximity to the project area. Expand the RPC screening to include data in close proximity to the project area.	The area used for RPC screening will be expanded as requested.	The response is acceptable pending EPA's review of the revised SAR.
8	1295	Section 2.2.2 Step 2: Surface Weighted Average Concentration, page 2-3	3: While project area-wide surface weighted average concentrations (SWACs) may be appropriate to identify non- point source contamination for many RAOs, tributyltin (TBT) is one example of a COC that is localized with a few samples greatly exceeding the cleanup level, and other areas containing lower concentrations that could impact achievement of point-by-point RAOs including RAO 5. Cadmium, copper, zinc, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and total PAHs are other COCs with elevated concentrations in portions of the project area that are eliminated in this step. These potential RPCs should not be screened out on this basis. Furthermore, as stated in Section 3.0 (Recontamination Conceptual Site Model), given the number of outfalls and discharge points within SIB "combined with the quiescent nature of the waterway focuses stormwater solids deposition to occur within limited areas around each outfall," using the SWAC of the entire SIB Project Area will dilute out RPCs with exceedances of the CULs associated with these discharge points. Revise the document as appropriate to clarify the rationale for screening out these contaminants as RPCs in consideration of RAO 5 achievement.	The RPC screening will be revised to incorporate two data sets recently approved by EPA (see comments on Section 2.1) as well as screening of groundwater, stormwater, river bank soils, and sediment. The revised screening will provide additional rationale for any COCs screened out based on SWAC's, including review of the spatial distribution of exceedances in each medium. With respect to point-by- point RAOs (e.g., RAO5), COCs with localized exceedances will be evaluated in the context of the CSM to interpret the present day spatial distribution as it relates to historical versus present day sources and releases, fate and transport processes, and the pathways between sources and exceedance locations.	The response is acceptable pending EPA's review of the revised SAR.
9	1296	Section 3 Recontamination Conceptual Site Model, page 3-1	The text indicates that the number of discrete discharge points combined with the quiescent nature of the waterway focuses stormwater solids deposition to occur within limited areas within each outfall. The approach to defining depositional areas should be further explained, including how the approach will address uncertainty. In addition, this section should explain how the recontamination potential evaluation will consider individual areas of deposition associated with each complete pathway without neglecting contextually appropriate consideration of the entire project area. This section should further describe how the spatial scales relevant to post-RA monitoring, as described in Appendix C of the RDGC, will be considered in the evaluation of recontamination potential.	The following will be added to Section 3 description: Areas of stormwater solids deposition will be defined using hydrodynamic and sediment transport modeling of outfall discharges into the basin, transport, and ultimate deposition. Inputs will be based on hydrologic analysis, sediment size measurements, and background contaminant concentration measurements collected during the proposed stormwater sampling program. These individual areas of deposition will be overlaid in a consistent modeling system with deposition and transport from other sources of potential recontamination (e.g. upriver sources). The consistent modeling framework, including all relevant potential recontamination sources, will be applied over the entire area sufficient to include future monitoring areas.	The response is acceptable pending EPA's review of the revised SAR.
10	1297	Section 3.1.1 Site Setting and Section 3.1.2 Stormwater Drainage Basins and Outfalls, page 3-2	Section 3.1.1 indicates that the drainage area is approximately 588 acres while Section 3.1.2 indicates that the drainage area includes 555 acres of mostly impervious area and 28.4 acres of pervious area (total of 583.4 acres). Resolve the inconsistency.	The value, 588 acres, cited in Section 3.1.1 is correct. Section 3.1.2 will be updated accordingly.	The response is acceptable pending EPA's review of the revised SAR.
11	1298	Section 3.1.2 Stormwater Drainage Basins and Outfalls, page 3-2	Revise this section to clarify that the improvements at the Portland Shipyard to re-route 18 outfalls for electrocoagulation treatment will accommodate flows up to the 2-year 24-hour storm event and that the stormwater conveyance system is designed to overflow to the project area during higher intensity flows (i.e., there remains the potential for stormwater to discharge to the project area).	The text will be revised as follows: System improvements will accommodate flows up to the 2-year, 24- hour storm event and are designed to overflow to SIB during higher intensity flows.	The response is acceptable pending EPA's review of the revised SAR.
12	1299	Section 3.1.2 Stormwater Drainage Basins and Outfalls, page 3-2:	Revise the text to clarify if the discharge from the "remaining Portland Shipyard outfalls" (i.e., not the 18 outfalls to be re-routed) are treated and, if so, describe the treatment.	The RD team will confirm discharge pathways during the proposed PDI data collection and the revised SAR text will be updated to clarify if discharge from the "remaining Portland Shipyard outfalls" are treated and, if so, the treatment will be described.	The response is acceptable pending EPA's review of the revised SAR.
13	1300	Section 3.1.5 Hydrogeology, page 3-5	EPA requests that the SAR include figures that present cross-sections illustrating the relationship of different aquifers to the Willamette River/project area.	A hydrogeologic cross-section illustrating the relationship of different aquifers under the SIB Project Area will be added to Section 3 of the final SAR.	The response is acceptable pending EPA's review of the revised SAR.

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14	1301	Section 3.1.6 Riverbank Surface Materials, page	Revise this section to indicate that, in addition to overland flows, outfall discharges can also erode riverbanks, and this should be considered during the erodibility assessment.	The text will be revised as follows: In addition to overland flows, outfall discharges can also erode riverbanks, and these discharges will be considered as part of the erodibility assessment.	The response is acceptable pending EPA's review of the revised SAR.
15	1302	Section 3.1.7.1 Natural Hydrodynamics, page 3-9	The third paragraph in the section relates tidal oscillation (i.e., tidal range) to river flow. Revise the text to clarify that river stage is controlled by both downstream flow and tidal range.	Agree with the intent and will reword the text. The first sentence of Paragraph 3 will be revised to read "River stage within the SIB Project Area is affected by both downstream river flow and tidal oscillations. Typical tidal ranges are between 3 and 5 feet during low-flow periods."	The response is acceptable pending EPA's review of the revised SAR.
16	1303	Section 3.1.7.1 Natural Hydrodynamics, page 3-9	Revise the text to discuss stormwater peak discharges and focused discharge points as anthropogenic, not natural, hydrodynamics. Indicate if any natural tributaries occur in SIB that have the potential to erode riverbanks.	Discussion of stormwater discharges in Section 3.1.7.1 will be moved to Section 3.1.7.2, Anthropogenic Hydrodynamics. Also, the following sentence will be added to Paragraph 3 of Section 3.1.7.1: "No natural tributaries occur in SIB."	The response is acceptable pending EPA's review of the revised SAR.
17	1304	Section 3.1.8 Bathymetry and Sediment Characteristics, page 3-10:	This section indicates "The SIB is subject to periodic maintenance dredging and dredging to support construction of dry dock mooring basins and supporting structures." Any data generated from such activities, such as analytical testing of sediments for ROD Table 21 COCs submitted to the Portland Sediment Evaluation Team (PSET), should be included in the data evaluated for the SAR as they may provide additional information on sediment characteristics and RPC concentrations in the SIB Project Area. Maintenance dredging data not included as part of an EPA-approved dataset on the Portland Harbor Environmental Data Portal can be evaluated qualitatively as per other datasets that are not approved by EPA for use during RD.	Comment noted. Analytical data from dredging efforts reported to PSET will be included in the SAR.	The response is acceptable pending EPA's review of the revised SAR.
18	1305	Section 3.4 Nature and Extent of In-Water Contamination, page 3-15	Revise this section to include information on the existing sediment depth of contamination (DOC), including depth intervals of exceedances and whether the DOC is delineated.	Noted. Discussion of the DOC, exceedance intervals, and whether DOC has been delineated will be added to the SAR.	The response is acceptable pending EPA's review of the revised SAR.
19	1306	Section 3.4 Nature and Extent of In-Water Contamination, third bullet, page 3-15	Revise the text to clearly differentiate the post-FS independent investigations (Geosyntec 2016; Kleinfelder, 2015) from the EPA-approved datasets. EPA notes that the Geosyntec 2016 data were approved for use during RD after submittal of the Draft SAR.	This bullet will be revised to distinguish between EPA-approved and independent data sets in accordance with the status of available data sets at the time of SAR revision.	The response is acceptable pending EPA's review of the revised SAR.
20	1307	Section 3.4.1 COC Terminology, page 3-15	Revise this section to define RALs. Clarify that sediment and riverbank soil is screened against the PTW thresholds, RALs, and CULs. See General Comment 1. In addition, use a consistent definition of RPCs, as currently the definition used in this section differs from that in Section 2 based on the screening out of COCs that only exceed CULs at a certain frequency of detection.	Section 3.4.1, COC Terminology, will be revised to clarify that sediment and riverbank soil will be screened against the PTW thresholds, RALs, and CULs. The definition of RPCs will be clearly stated on first use in the document and used consistently throughout the SAR.	The response is acceptable pending EPA's review of the revised SAR.
21	1308	Section 3.4.2 Surface and Subsurface Sediment COC Summary Statistics, page 3-16	This section states "PCBs have similar mean, median, and 95% upper confidence limit concentrations in surface and subsurface sediments. Assuming no degradation or other attenuation of these COCs, the data implies the source loading of PCBs to the SIB has remained roughly consistent over time." The evidence presented does not support this conclusion. This could just mean that the sediments are getting remixed via resuspension and deposition, so that there is no visible trend over time or that there is limited sediment deposition since the SIB is a quiescent lagoon. Revise the text to provide more detail to support a temporal trend and clarify the time period for the trend. In addition, ensure the text is consistent with Section 3.4.3.3, page 3-19, which provides three alternate interpretations of these data.	Noted. This interpretation of the data will be removed from Section 3.4.2. The alternate interpretations in Section 3.4.3 will be revised as requested in the comment below.	The response is acceptable pending EPA's review of the revised SAR.
22	1309	Section 3.4.3.1.2 Dioxins and Furans, page 3-17	Consistent with Section 3.4.3.1.1 PCBs, revise this section to state that dioxins and furans exceed the CUL throughout the basin.	This section will be revised to state that dioxins and furans exceed the CULs throughout SIB.	The response is acceptable pending EPA's review of the revised SAR.
23	1310	Section 3.4.3.2.2 Dioxins and Furans, page 3-18	Consistent with the discussion of other COCs in Section 3.4.3.2, revise this section to state that dioxins and furans exceed RALs and CULs throughout the basin.	This section will be revised to state that dioxins and furans exceed the CULs and RALs throughout SIB.	The response is acceptable pending EPA's review of the revised SAR.
24	1311	Section 3.4.3.3 Summary of RPCs in Sediment, page 3-19	This section presents three alternative interpretations of relative concentrations of COCs in surface and subsurface sediments, indicating that the most likely interpretation is that there is little sedimentation over time. EPA requests that the SAR clarify that the three alternative interpretations are not mutually exclusive. In addition, a fourth interpretation is that sediment is well mixed by anthropogenic forces such as prop scour in some areas such as where the U.S. Coast Guard Bluebell ship is berthed. Revise the text in consideration of this interpretation.	Request noted and agreed. Text will be updated to include potential fourth interpretation proposed by EPA and note that the alternative interpretations are not mutually exclusive.	The response is acceptable pending EPA's review of the revised SAR.
25	1312	Section 3.4.3.3 Summary of RPCs in Sediment, page 3-19	This section states that "the detection limits for dieldrin were frequently greater than the CUL [cleanup level]." Revise the text to indicate whether any other COCs had detection limits frequently higher than the CUL and discuss associated uncertainty in the RPC screening and recontamination evaluation.	Section 3.4.3.3 will be amended to incorporate the following discussion. Table 2-2 includes statistics on the number of non-detect results exceeding CULs. Non-detect samples with detection limits for dieldrin exceeded the sediment CUL in 148 out of 175 samples, or 85 percent. Note that despite this, dieldrin was retained as an RPC. The constituents with the next highest rate of non-detects exceeding CULS were total chlordane (19 percent) and the dioxin/furans TCDD (19 percent) and PeCDD (16 percent). These COCs were also retained as RPCs. Non-detects exceeding CULS were less than about 5 percent for all other COCs. Based on these results, we do not believe that elevated detection limits have resulted in major uncertainty over RPC screening.	The response is acceptable pending EPA's review of the revised SAR.

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26	1313	Section 4 Potential Upland Sources of Contamination, page 4-1	Section 4 identifies upland sites located within the City outfall drainage basins or along the shoreline as potential sources of recontamination to the project area. EPA acknowledges that the PDI Work Plan includes additional investigation of sources of direct discharges to the project area to further assess recontamination potential. However, EPA notes that based on information from DEQ, upland sites within the Swan Island/Mocks Bottom Georegion adjacent to the project area were evaluated consistent with the Portland Harbor Joint Source Control Strategy (DEQ and EPA 2005), and DEQ screened out incomplete pathways and/or excluded pathways or sites from evaluation due to the absence of significant sources, as noted in the 2016 Portland Harbor Upland Source Control Summary Report (DEQ 2016). Based on that evaluation, recontamination potential from stormwater discharges to the project area is considered to be low once planned source controls underway are completed. Provide additional evidence to support the reclassification from DEQ's "A" status to a "C" status, other than this being a "conservative measure" as currently described in the text.	HGL reclassified some sites adjacent to SIB and/or that directly discharge to SIB from "A" to "C" based on the lack of data for riverbanks or stormwater adjacent to RAL or PTW threshold exceedances in SIB sediment, the lack of recent post-CSM data for recontamination potential modeling, or concentrations that exceed applicable ROD Table 17 CULs. This PDI data collection will directly address these data gaps that are driving the reclassification from "A" to "C." The revised SAR will revisit each of these reclassifications with the benefit of new data generated by the PDI, and the reclassifications will either be supported or revised. Section 4.4.1 and Table 4-1 will be updated accordingly. The stormwater pathways were generally assigned "C" if the site had a NPDES-1200Z NEC, and no data was available after the system cleaning occurred to confirm that the cleaning eliminated sources. Site proximity to contaminated sediment with RAL and PTW threshold exceedances was also considered.	The response is acceptable pending EPA's review of the revised SAR.
27	1314	Section 5.1 Upland Pathways, page 5-1	This section indicates there are 60 private stormwater outfalls within the SIB Project Area, whereas the Executive Summary, Direct Discharges, page ES-5 refers to 61 municipal and private outfalls. Revise the SAR for consistency.	There are actually 51 outfalls. Page ES-5 and Section 5.1 will be updated accordingly.	The response is acceptable pending EPA's review of the revised SAR.
28	1315	Section 6.1.3.1.2 Potential for Overland Flow to the River, page 6-3	Overland flow can occur at unpaved areas, if soil is compacted or if precipitation is heavy such that infiltration rates are exceeded. Revise this section accordingly.	This section will be revised as follows: Overland flow can occur from unpaved areas if soil is compacted or if precipitation is heavy such that infiltration rates are exceeded.	The response is acceptable pending EPA's review of the revised SAR.
29	1316	Section 6.2.1 End of Swan Island Lagoon, page 6-6	Table 17 of the ROD accounts for background levels of arsenic in the greater Willamette River basin. It is unclear why the third paragraph in this section describes "elevated groundwater concentrations" in this area as being naturally occurring while they do not seem prevalent elsewhere, which implies EPA agrees with this assertion. Revise the text to note that while arsenic is naturally occurring, these dredge materials do not seem to represent an unacceptable recontamination risk and delete the implications that this plume is naturally occurring from the text as it does not relate to the path forward for the sufficiency assessment process.	The text will be revised as follows: While arsenic is naturally occurring, these dredge materials do not seem to represent an unacceptable recontamination risk.	The response is acceptable pending EPA's review of the revised SAR.
30	1317	Section 6.3.1 Overview of Stormwater Discharge and Overland Flow in the Project Area and Section 6.3.2 Representative stormwater Data for Remedial Action, page 6-10	Section 6.3.1 indicates there are six Port of Portland outfalls and Section 6.3.2 indicates there are seven. Correct the inconsistency.	There are six outfalls. The text will be updated accordingly.	The response is acceptable pending EPA's review of the revised SAR.
31	1318	Section 6.3.2 Representative Stormwater Data for Remedial Action, page 6-10 and Appendix E Section 4.2	This section discusses key considerations for stormwater data representativeness, including sample location, sample type, and sample timeframe. However, data discussions in the sections that follow (i.e.., Sections 6.3.2.1 through 6.3.2.5) do not assess whether stormwater or stormwater solids data are representative of discharges to the project area. Revise applicable sections to discuss data representativeness.	Sections 6.3.2.1 through 6.3.2.5 will be revised to discuss data representativeness.	The response is acceptable pending EPA's review of the revised SAR.
32	1319	Section 6.3.3. City of Portland Outfall Basins, page 6-11	This section concludes by indicating that HGL disagrees that sources from City outfalls are sufficiently assessed and controlled for RA based on the data age and the magnitude of CUL exceedances in stormwater and stormwater solids. Revise the text to explain what role or significance data age plays in this conclusion, and if this is a concern for other media (e.g., sediment, riverbank soils). As indicated in General Comment 1, recontamination potential should include a lines of evidence framework and not rely on CUL exceedances alone.	The recontamination potential evaluation will be updated to include a lines of evidence framework.	The response is acceptable pending EPA's review of the revised SAR.
33	1320	Section 6.3.3.2.2 Potential Upland Sources, page 6-13	This section indicates that six facilities in the M-2 drainage basin have NPDES 1200-Z industrial stormwater permits and four facilities have 1200-Z NECs. This conflicts with information in Table 3-2. Revise accordingly.	The text will be revised as follows: Five facilities in the M-2 drainage basin have NPDES 1200-Z industrial stormwater permits and three facilities have 1200-Z NECs.	The response is acceptable pending EPA's review of the revised SAR.
34	1321	Section 6.3.3.5.2 Potential Sources, page 6-16	Information on the "three ECSI sites that are in the ODEQ Cleanup Program (ECSI 271, including SIUF OU1 and OU3 of the Portland Shipyard, and ECSI 1430 Automatic Vending)" should be added to Table 3-2.	Table 3-2 summarizes sites with NPDES 1200-Z permits or NECs. Swan Island Upland Facility (SIUF) 0U1 = Vigor Industrial which is in the S-1 drainage basin. SIUF OU3 is owned by the Port of Portland and has a MS4 permit. Automatic Vending's SIC classification does not require an NPDES 1200-Z permit but it is performing a source control evaluation.	The response is acceptable.
35	1322	Section 6.3.3.5.3 Source Control Measures and Investigations, page 6-17	"The investigation also concluded that off-site migration of TBT from SIUF OU1 of the Portland Shipyard to basin S-2 likely is occurring (CPBES, 2012). TBT is not considered a SIB RPC." EPA does not agree that TBT can be screened out at this time. See Specific Comment on Section 2.2.2 regarding appropriate spatial scale analysis for point sources.	Comment noted. The revised SAR will revisit the screening analysis and the inclusion of tributyltin based on consideration of new data derived from the proposed PDI sampling.	The response is acceptable pending EPA's review of the revised SAR.
36	1323	Section 6.3.4.3 ATC Leasing Co LLC (ECSI 4461), page 6-18	Table 3-2 appears to indicate this facility also discharges via City Outfall M-2. Clarify in the text and add the ESCI information to Table 3-2.	Section 6.3.4.3 will be updated to clarify that ATC Leasing Co LLC discharges directly to SIB via two outfalls as well as discharges to the M-2 outfall basin. Table 3-2 will be updated to note that the site is a closed ECSI site.	The response is acceptable pending EPA's review of the revised SAR.
37	1324	Section 6.3.4.6 DTNA Corp 5 and Wind Tunnel Facility, page 6-19	The following statement is misleading and should be clarified: "Stormwater is not subject to regulation under the Clean Water Act…"	That statement will be deleted from Section 6.3.4.6.	The response is acceptable pending EPA's review of the revised SAR.

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38	1325	Section 6.3.4.8 Portland Shipyard (SIUF OU1), page 6-21	A source control status of "C" is not justified at the Portland Shipyard based on the SCMs that have been implemented and should be revised. As described in Section 6.3.4.8.2, Vigor is implementing an SCM that involves rerouting stormwater from Group G and Group M1 basins that discharge to the SIB and treating that stormwater in an electrocoagulation treatment system. The electrocoagulation treatment system has shown to be effective at treating stormwater from the Portland Shipyard, suggesting a source control status of "B" is more appropriate.	The stormwater source control status for the Portland Shipyard will be upgraded to "B."	The response is acceptable pending EPA's review of the revised SAR. Note that based on information from DEQ, the SCMs noted (i.e., electrocoagulation treatment system) only address a portion of the Portland Shipyard. EPA recommends further discussion with EPA and DEQ about the appropriate status of the Portland Shipyard prior to revision of the SAR.
39	1326	Section 6.3.4.8 Portland Shipyard (SIUF OU1),	Table 3-2 appears to indicate this facility also discharges via City Outfall S-1. Clarify in the text.	The RD team will confirm facility discharge pathways and update Table 3-2 to reflect the results. A portion of the facility drains to City Outfall S-1.	The response is acceptable pending EPA's review of the revised SAR.
40	1327	Section 6.3.4.8 Portland Shipyard (SIUF OU1), page 6-20	While collecting tenant and owner use information is a secondary line of evidence, an empirical primary line of evidence of past and current overwater recontamination potential would be to collect push cores under dock areas and analyze appropriate intervals to evaluate surface and subsurface contamination (i.e., at least two feet long with analysis of one-foot intervals). Revise the text accordingly. The PDI Work Plan should also be revised to incorporate this sampling.	We performed a review of existing sediment data, planned sediment data, and overwater structures in SIB. The largest overwater structure areas displayed in the 'dock_structures.shp' shapefile from the PHC Portal are along the innermost wall of the Dry Dock Basin. Similar to Pier A, there are no accessible sediments to sample under this part of the Dry Dock Basin; a cellular vertical sheet pile wall extends along this border, except for a small gap that is already sampled and targeted as a core location in this RD work. The inside of Berth 311 included one grab sample location in the Draft Final FSP, and now includes two new targeted core locations in grid cells B28 and B29 shown on Figure 4-4 of the FSP. Other overwater structures in SIB have either existing sample data in close proximity, or new samples targeted nearby in the FSP.	The response is mostly acceptable. Revise the SAR to discuss the information provided in the response.
41	1328	Section 7.1 Upstream Suspended Sediment, page 7-1	This section states that the success of the remedy in Portland Harbor will partly rely on deposition of cleaner sediments. However, later in this section, it acknowledges that the quiescent SIB has very limited sediment exchange with the mainstem of the river. In addition, Section 7.1.4 states that numerical hydrodynamic modeling is required to evaluate the contribution of upstream sediments to recontamination in Swan Island Basin. Revise the text to provide additional description of the numerical hydrodynamic modeling that will be conducted to evaluate the contribution of upstream sediments to recontamination, and reiterate that this modeling evaluation will not delay remedial design or remedial action.	Section 7.1 will be updated with the following text: Hydrodynamic and sediment transport modeling will be performed with 3D modeling tools during the PDI to evaluate the contribution of upstream sediments to recontamination in SIB. Modeling will be performed on a river-wide scale by tracking multi-fraction sediments originating in sources placed in upstream and/or downstream areas of interest with known sediment types and contaminant concentrations. This modeling will be completed during the PDI and hence will not delay RD or RA.	The response is acceptable pending EPA's review of the revised SAR.
42	1329	Section 7.1.1 Upstream PDI-BL Suspended Sediment RPC Concentrations, page 7-2	The SAR states that the 2018 PDI-Baseline (-BL) sediment trap data indicate that incoming solids with concentrations that exceed the CULs may be contributing to the RPC loading within the SIB Project Area. The text should be revised to indicate that EPA's evaluation of the PDI-BL data report determined that it is incorrect to conclude that the sediment trap CUL exceedances are an upstream source of contamination due, at least in part, to flow reversals. Revise the statement in this section and elsewhere in the SAR (e.g., Section 9.6 In-Water Pathways).	The potential for sediments transported from upriver to be deposited within the SIB Project Area is variable within the SIB Project Area with the highest potential at the mouth of SIB and the lowest potential in the interior of SIB. The hydrodynamic and sediment dynamic modeling proposed in the PDI will provide a robust evaluation of the fate of sediments derived from upriver, and the discussion in the revised SAR will reflect those results. Regarding the statement interpreting the 2018 PDI baseline sediment trap data, the statement will be revised to report EPA's evaluation per the comment.	The response is acceptable pending EPA's review of the revised SAR.
43	1330	Section 7.2 Resuspension of Bedded Sediments, page 7-3	This section mentions "subsurface sediment that remains in place and has concentrations greater than applicable RALs". Revise the text to describe the levels of contamination that would be left in place in surface and near- surface sediments and how that would be used to evaluate the magnitude of recontamination that would occur if this material were resuspended and redistributed.	The following text will be added to the revised SAR: For surface and near-surface contaminated sediments left in place, their potential contribution to site recontamination will be determined during the PDI evaluation of scour/resuspension recontamination pathways (both natural and anthropogenic). Hydrodynamic and sediment transport modeling will evaluate scour, movement, and re-deposition.	The response is acceptable pending EPA's review of the revised SAR.
44	1331	Section 7.2.3 Conclusions and Identification of Data Needs for the Resuspension Pathway, page 7- 4	Revise this section to describe what data are currently available to fill the data gaps listed (i.e., current, water level, suspended sediment, wind-wave, and vessel wake measurements). Clarify that near-bed vessel impacts are more significant than wake and wind in deep water environments like Swan Island basin and how those impacts would be assessed. For example, an evaluation of whether raising and lowering the dry dock causes short term resuspension should be included.	The following text will be added: Minimal data exists for measured hydrodynamics in the basin; therefore, data collection is proposed to obtain current, water level, suspended sediment, wind-wave, and vessel wake measurements. Near-bed vessel impacts are potentially more significant than wake and wind- waves in deep water environments like SIB. Effects of propeller wash, wakes, and wind-waves will be evaluated using hydrodynamic and sediment transport modeling tools. In addition, potential resuspension and scour caused by raising and lowering of the drydock is also proposed for evaluation using numerical models during the PDI.	The response is acceptable pending EPA's review of the revised SAR.
45	1332	Section 7.3 Advection of Groundwater through Sediment (Porewater), first paragraph, page 7-4	Revise the last sentence to acknowledge the contribution of groundwater COCs for the porewater to surface water pathway. The text currently states that: "Recontamination via this pathway would be through advection of COCs desorbed from subsurface sediments migrating and partitioning back to the remediated clean surface cap material." Recontamination via this pathway would be through migration of contaminated groundwater from uplands, if present, in addition to the advection of COCs desorbed from subsurface sediments because porewater concentrations will be comprised of both these COC contributions (i.e., groundwater and partitioning from sediments).	The last sentence will be revised as follows: Recontamination via this pathway would be through migration of contaminated groundwater from uplands, if present, in addition to the advection of COCs desorbed from subsurface sediments because porewater concentrations will be comprised of both these COC contributions (i.e., groundwater and partitioning from sediments).	The response is acceptable pending EPA's review of the revised SAR.
46	1333	Section 7.4 Leaching or Abrasion from Existing In-Water Structures, page 7-6	Revise this section to describe whether marine anti-fouling paint that can contain biocides and PCBs were or are presently used or introduced into Swan Island Basin.	We do not have information on historical or current use of anti-fouling paints on in-water structures at SIB. This remains a data gap. The PDI Work Plan includes a field reconnaissance of shoreline and overwater structures and interviews with owners/operators. Part of the purpose of this work will be to confirm as-built details, including identification of construction materials that could contain RPCs. This is a data gap currently being investigated to further address EPA's comment.	The response is mostly acceptable. Revise the SAR to discuss the information provided in the response.
47	1334	Section 8.3 Changes in Waterway Use, page 8-2	Revise the text to note that other modes of disturbance from recreational boaters include anchoring and beaching of vessels which the design should account for in terms of physical measures and Institutional Controls.	The following will be added to Section 8.3: All modes of disturbance from recreational boaters will be accounted for in design, including anchoring and beaching of vessels. Mitigation measures may include physical measures and/or institutional controls.	The response is acceptable pending EPA's review of the revised SAR.

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48	1335	Section 8.6 Modeling of Surface Sediment Recontamination, page 8-3	Rephrase “freshly deposited sediment” as “depositing sediments” since it is the concentration on the depositing sediments that is an input to the model rather than concentrations after deposition (which may be affected by mixing, decay, diffusion, etc.). In addition, also revise similar phrasing in Appendix A. See also General Comment 7 regarding overall use of SEDCAM.	Section 8.6 and Appendix A will be revised to replace "freshly deposited sediment" with "depositing sediments." This is a data gap currently being investigated to further address EPA's comment.	The response is acceptable pending EPA's review of the revised SAR.
49	1336	Section 8.6 Modeling of Surface Sediment Recontamination, page 8-3 Section 9.1 Source Control Status, page 9-1	The text states: “Modeling will initially focus on the RPCs with the highest exceedances of CULs based on the SWACs in surface sediments in the SIB Project Area (see Section 2). These RPCs include PCBs, dioxins/furans, diesel, and BEHP. Other RPCs may also be evaluated with SEDCAM modeling.” Revise the text to clarify how it will be determined which other contaminants with CULs will be modeled. RPCs with slow decay rates should be considered at a zero decay rate in addition to RPCs with high SWACs to conservatively assess recontamination potential. In addition, clarify whether the modeling will use the post-remediation SWACs as an initial condition for evaluating recontamination and how those time zero (T0) concentrations will be estimated. Revise the text to indicate, as in previous sections of the SAR, that the C-status sites are further distinguished as “C(u)” for not sufficiently controlled or “C(a)” for not sufficiently assessed.	Other RPCs to be modeled will be selected based on results of stormwater sediment trap and bank sampling to be performed under the PDI, and revised RPC screening to be performed for the final SAR. RPCs found in these media that exceed cleanup levels will be carried forward for modeling. The model will use post-remediation SWACS. The SAR text will be updated to include this information. Regarding Section 9.1, comment noted, and requested changes will be made in the final SAR.	The response is acceptable pending EPA's review of the revised SAR.
50	1337	Section 9.2 Riverbanks, page 9-1	This section indicates that chemical characterization of riverbank soils is only necessary in locations subject to bank erosion or instability. This is incorrect. Revise the text to indicate that chemical characterization of the riverbanks is required and may include both soil and groundwater. Potential contaminant migration pathways include erosion of riverbank soil, non-aqueous phase liquid (NAPL) migration, leaching of contaminants in riverbank soil to surface water, leaching of contaminants in riverbank soil to groundwater, and groundwater discharge to the river. Refer to General Comment 4.	The text will be revised as follows: Chemical characterization of the riverbanks is required and may include both soil and groundwater. Potential contaminant migration pathways identified by the CSM include erosion of riverbank soil, leaching of contaminants in riverbank soil to surface water, leaching of contaminants in riverbank soil to groundwater, and groundwater discharge to the river.	The response is acceptable pending EPA's review of the revised SAR.
51	1338	Section 9.3 Direct Discharges, page 9-2	The approach for evaluating whether additional source control actions are necessary should be revised. Exceedances of surface water and/or sediment CULs in stormwater and stormwater solids or a lack of data for some RPCs does not necessarily mean that additional source identification or source control is needed. Stormwater should be controlled such that it does not recontaminate the in-water remedy and does not present unacceptable risk to in-water receptors. Stormwater should be evaluated using a weight of evidence approach consistent with the Portland Harbor Joint Source Control Strategy (DEQ and EPA 2005) and DEQ’s Guidance for Evaluating the Stormwater Pathway at Upland Sites (DEQ 2010).	The approach for evaluating the need for additional stormwater source control measures will be updated to using a weight of evidence approach consistent with the ODEQ-EPA JSCS and ODEQ's stormwater guidance. While ODEQ concluded that the recontamination potential from stormwater discharges to SIB via city outfalls was low, stormwater and solids data is still needed to estimate the recontamination potential to SIB using SEDCAM to ensure that stormwater does not recontaminate the future in-water remedy.	The response is acceptable pending EPA's review of the revised SAR.
52	1339	Section 9.3 Direct Discharges, page 9-2	Additional justification is needed for the suggestion that off-site tracking of PCB-impacted soil could be occurring from an upland site in the M-3 outfall basin that could be impacting the City’s conveyance system. It is unclear why one upland site was specifically identified as a potential PCB source in the M-3 drainage and why it warrants additional data gaps investigation. Section 6.3.3.3.2 clarifies that the upland site is Fred Meyer – Swan Island (ECSI #44) but does not describe why PCB-impacted soils are suspected to have a complete migration pathway to the Willamette River.	This site was initially flagged on the basis of anecdotal information not supported by rigorous data and analysis to characterize the nature of the soil tracked on the roadway. This proposed sampling will be eliminated based on EPA comments.	The response is acceptable pending EPA's review of the revised SAR.
53	1340	Section 9.3 Direct Discharges, page 9-2	Clarify or remove the statement “Collect samples in public rights-of-way near upland sites of concern.” It is unclear what media this statement refers to (i.e., soil, catch basin solids, or stormwater), which upland sites of concern it is referencing, how these upland sites were determined to be a concern, or how these data will address the stormwater data gaps that were identified.	This text will be deleted.	The response is acceptable pending EPA's review of the revised SAR.
54	1341	Table 2-3 Step 1B: Point-by-Point Screening	Gamma-HCH (lindane) is not included in the table. However, the frequency of detected exceedances for lindane was 2.3 percent, based on Table 3-4. Revise Table 2-3 for the Step 1B screening evaluation or clarify in Section 2.2.1 why lindane was not included.	Noted. Lindane will be added to Table 2-3 and the text will be revised to state that lindane is screened out as an RPC at this step.	The response is acceptable pending EPA's review of the revised SAR.
55	1342	Table 3-3 Swan Island Basin Project Area, COC Terminology	This table should be reviewed for completeness and revised as needed. Also, the constituents flagged as “Identified SIB RPCs” should be adjusted based on re-evaluating the RPCs per previous comments.	Table 3-3 will be revised after the RPC evaluation is updated to include all media with potentially complete migration pathways to SIB.	The response is acceptable pending EPA's review of the revised SAR.
56	1343	Table 3-4 Surface and Subsurface Sediment Statistics and Potential Screening Levels	Information listed for the persistent COCs, pesticides, and metals is identical for surface and subsurface sediment. Review and correct the information in the table, as needed, to distinguish between surface and subsurface sediment characteristics. The surface and subsurface sediment COC statistics discussion in Section 3.4.2 and distribution of RPCs in surface and subsurface sediment discussion in Section 3.4.3 should be revised, as needed, to reflect changes to Table 3-4.	The surface sediment statistics for the persistent COCs, pesticides, and metals was inadvertently repeated for subsurface sediments on Table 3-4. The text in Section 3.4 was prepared using the correct version of Table 3-4. A revised table will be provided in the final SAR.	The response is acceptable pending EPA's review of the revised SAR.

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57	1344	Table 4-1 Swan Island Basin Project Area Sufficiency Assessment Summary Matrix	Revise Table 4-1 to address the following comments: a. Revise the DEQ site status to include status by pathway indicating whether DEQ has identified the pathway as controlled or uncontrolled, including those with an "excluded" status. b. Revise the table to clearly indicate that the status assignments shown in "Potential Pathways to Swan Island Basins" are HGL's and in many cases are not consistent with DEQ's, as presented in Table 4.6.3-3 of DEQ's 2016 Portland Harbor Upland Source Control Summary Report (DEQ 2016). c. Divide the "Contaminants of Interest >CUL and/RAL" column to separately discuss complete pathways where RPCs are present in media >RAL and those that are >CULs. d. Revise the table to more clearly present rationale for HGL's pathway status assignments, including identifying whether data are available for each potential pathway, and what data gaps remain for each potential pathway. EPA recommends that the "Contaminants of Interest >CUL and/RAL" columns account for data on a pathway by pathway basis. e. A status pathway of C(u) is inappropriate for the City outfall drainage basins, as they are considered controlled by DEQ. Revise the table to indicate that HGL may consider the existing data insufficient for evaluating recontamination potential using the proposed modeling in Appendix A. f. Revise the table to better support the classifications. Three of the City outfall drainage basins (M-1, M-2, and M-3) are identified as uncontrolled and two (S-1 and S-2) are identified as conditionally controlled. However, there is little apparent difference in the supporting information columns to explain the difference in status assignments. g. Revise the table for "C" status pathways to differentiate between pathways that have uncontrolled sources (C[u]) and pathways for which additional assessment is recommended (C[a]). h. Revise the table to clarify why the Union Pacific Railroad - Albina Yard 1135 N Knott Street is classified as "A", whereas the DEQ Status is "C (Open)".	Table 4-1 will be revised to comply with each of these comments.	The response is acceptable pending EPA's review of the revised SAR.
58	1345	Figure 1-3 SIB Project Area Technology Assignments per the PHSS ROD	Figure 1-3 appears to be accurately reproduced from the ROD; however, the U.S. Coast Guard Bluebell berthing area is incorrectly shown as cap. It should be dredge/cap and Future Maintenance Dredge (FMD) based on expected future uses. Clarify in the text or on the figure if this is a figure artifact.	This figure will be updated for the revised SAR and the updates will be applied to corresponding figures in both the PDI Work Plan and FSP.	The response is acceptable pending EPA's review of the revised SAR.
59	1346	Figure 2-2 RPC Screening Flowchart	Figure 2-2 is inconsistent with text in Section 2.2.1 and Section 2.2.2 that indicates cPAHs were eliminated in Step 2. Revise for consistency.	Noted. The figure will be revised as requested.	The response is acceptable pending EPA's review of the revised SAR.
60	1347	Figures 3-6 through 3-33	EPA recommends that the color scheme used to represent concentration break points (e.g., >PTW, >RALs, >multiples of CULs) in surface and subsurface sediments be standardized to facilitate comparison among figures.	Noted. However, not all COCs have the full set of PTWs, RALs, and CULs making consistent depiction of breakpoints difficult. We will attempt to standardize the breakpoints to the extent possible to improve clarity of the figures.	The response is acceptable pending EPA's review of the revised SAR.
61	1348	Figures	Figures throughout the document and associated appendices depicting surface and/or subsurface data should indicate sampled depths for all surface and subsurface samples. If multiple subsurface core depths are included in the same figure, unique symbols could be used to differentiate the total sampling depth at different locations.	Noted. However, we believe that adding this information to the figures will make them very busy and difficult to read. We developed figures depicting depth of exceedances and whether the depth of contamination is bounded for selected COCs in the PDI Work Plan. These figures can be reproduced for the SAR if desired.	The response is acceptable.
62	1349	Figures	Figures throughout the document and associated appendices that identify subsurface sample exceedances of CULs and/or RALs should indicate depth intervals of exceedances and whether the DOC is bounded.	See response to Comment 1349.	EPA assumes the response should reference Comment 1348. The response is acceptable.
63	1350	Figures	Add a figure to show recent maintenance dredging activities in SIB (e.g., the U.S. Coast Guard Bluebell area), as this is helpful to the reader in interpreting sediment profile information relative to the recontamination potential described in the SAR.	The RD team recently acquired data regarding recent maintenance dredging activities in SIB and will develop and include a new figure showing the extent of those dredging activities in the revised SAR.	The response is acceptable pending EPA's review of the revised SAR.
Editorial Comments on the SAR					
1	1351	Acronyms	Revise "principal waste threat" to "principal threat waste".	Text revised throughout to correct this typo.	The response is acceptable pending EPA's review of the revised SAR.
2	1352	Executive Summary, Direct Discharges, page ES-5	"A 2015 City Bureau of Environmental Services inventory identified sixty-one municipal and private outfalls discharge to SIB." Revise "discharge" to "discharging".	Text revised per comment.	The response is acceptable pending EPA's review of the revised SAR.
3	1353	Executive Summary, Direct Discharges, last	Separate the last bullet to add another bullet that begins "Observe surface conditions (e.g., pavement versus erodible soils and off-site tracking) in the municipal M-3 outfall basin…"	Text revised per comment.	The response is acceptable pending EPA's review of the revised SAR.
4	1354	Section 3.2.11.2 Wharves, page 3-13	Insert "is" after "deck" in the following sentence: "The deck made of wood and covered by 3 to 4 inches of asphalt."	Text revised per comment.	The response is acceptable pending EPA's review of the revised SAR.
5	1355	Section 3.2.11.2 Wharves, page 3-13	Remove the comma from the following sentence: "The shoreside length of the Lagoon Wharf joins the land at a sheet pile, bulkhead driven to various depths.	Text revised per comment.	The response is acceptable pending EPA's review of the revised SAR.
6	1356	Section 3.4.3.1.2 Dioxins and Furans, page 3-17	Revise "Berth 308 at the Port of Portland's N/ Lagoon Avenue property" to "Berth 308 at the Port of Portland's N. Lagoon Avenue property".	Text revised per comment.	The response is acceptable pending EPA's review of the revised SAR.
7	1357	Section 4.4 and Section 4.5 Headers, page 4-4	Correct the misspelling of "Sources".	Text revised per comment.	The response is acceptable pending EPA's review of the revised SAR.
8	1358	Section 6.1.3.2.1 Erodibility, page 6-4	Correct the following typo: "…rills 05.- to 1-inch deep…".	Text revised per comment.	The response is acceptable pending EPA's review of the revised SAR.
9	1359	Section 6.1.3.3 Riverbank Soil Data, page 6-5	This section should be part of Section 6.1.3.2 (i.e., should be renumbered to 6.1.3.2.3). The following Section 6.1.3.4 and associated subsections should be renumbered to 6.1.3.3.	Text adjusted and sections renumbered per comment.	The response is acceptable pending EPA's review of the revised SAR.

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10	1360	Section 6.3.2 Representative stormwater Data for Remedial Action, first bullet, pages 6-10 and 6-11	The second sentence is a run-on sentence and should be revised.	Sentence revised to two separate sentences to eliminate run-on.	The response is acceptable pending EPA's review of the revised SAR.
11	1361	Section 6.3.4.3 ATC Leasing Co LLC (ECSI	Revise the incomplete sentence to provide the missing information: “Pesticides and PCBs were not detected, but MRLs exceeded the CULs by a factor of.”	Sentence completed per comment.	The response is acceptable pending EPA's review of the revised SAR.
12	1362	Section 6.3.4.8 Portland Shipyard (SIUF OU1), page 6-20	Revise the incomplete sentence: “as the Portland Shipyard is a full-service shipyard, providing ship repair and maintenance, barge building, and metal parts fabrication services.”	Sentence completed per comment.	The response is acceptable pending EPA's review of the revised SAR.
13	1363	Section 7.1.4 Conclusions and Identification of Data Needs for the Upstream Pathway, page 7-3	Revise the last sentence to change “related potential to contribution” to “related potential to contribute”.	Sentence revised per comment.	The response is acceptable pending EPA's review of the revised SAR.
14	1364	Figures	Remove “Confidential” from the figures.	All figures revised to remove "Confidential."	The response is acceptable pending EPA's review of the revised SAR.
15	1365	Figures	Location labels within the text do not always match those identified in the figures. Resolve the inconsistencies.	Figures and text checked throughout and revised to make figures and text consistent per comment.	The response is acceptable pending EPA's review of the revised SAR.
16	1366	Appendix E	The acronym “RCP” is used several times in the appendix. Revise to RPC.	Global search and replace completed to revise "RCP" to "RPC"	The response is acceptable pending EPA's review of the revised SAR.
References					
			DEQ. 2010. Guidance for Evaluating the Stormwater Pathway at Upland Sites. Prepared by DEQ Environmental Cleanup Program. Updated October 2010. DEQ. 2016. Portland Harbor Upland Source Control Summary Report, November 21, 2014. Northwest Region Cleanup Program. Updated March 25. DEQ. 2021. Staff Report: Conditional Source Control Decision City of Portland Outfalls Project in Portland Harbor. Northwest Region Cleanup. Portland, Oregon. April. DEQ and EPA. 2005. Portland Harbor Joint Source Control Strategy. EPA. 2017. Record of Decision, Portland Harbor Superfund Site, Portland, Oregon. Prepared by EPA Region 10. EPA. 2021. Remedial Design Guidelines and Considerations. Portland Harbor Superfund Site, Portland, Oregon. April 23, 2021.	These citations are included in the SAR.	
EPA Comments on Appendix A SEDCAM Recontamination Modeling Approach of the Draft Sufficiency Assessment Report, Swan Island Basin Project Area, Dated June 2021					
Following are EPA’s comments on the HGL SEDCAM Recontamination Modeling Approach, Appendix A of the SAR, prepared by HGL on behalf of the SIB Remedial Design Group and dated June 2021.					
General Comments on Appendix A					
1	1367	Use of SEDCAM for Recontamination Evaluation	Section 1 acknowledges that SEDCAM “does not model the complex dynamics of sediment transport and deposition from potential sources” and that “to address those complexities, the results of other modeling efforts and field investigations will be integrated with SEDCAM results to develop combined contaminant loading estimates from all sources to sediments” within the project area. These statements reiterate that SEDCAM should not be used as the sole line of evidence for the recontamination evaluation. However, Appendix A does not explain what or how other modeling efforts, beyond generic descriptions of hydrodynamic and sediment dynamic modeling, will be used to inform the recontamination evaluation or which field investigation results will be used to account for SEDCAM’s limitations. Revise Appendix A to provide more detail on the use of other models and data.	Appendix A will be revised to include the following: SEDCAM inputs at a specific location will be derived from a set of contaminant mass loading estimates from all relevant potential recontamination pathways. These mass loading estimates will be generated using 3D hydrodynamic/sediment transport modeling simulations that track fate of sediments from other locations (upriver, outfalls, SIB riverbed, and overwater locations). The simulations will include mass loading to the location of interest caused by both natural forces and anthropogenic forces in the SIB. Each recontamination source will have known sediment types and contaminant concentrations, resulting in both sediment mass loading and contaminant loading to the location of interest. Numerical models will be validated to the extent feasible, and bolstered by other lines of evidence such as measured sedimentation rates.	The response is acceptable pending EPA's review of the revised SAR.
Specific Comments on Appendix A					
1	1368	Section 2 SEDCAM Model, page A-2	The proposed SEDCAM modeling assumes no COC inputs from the bottom of the model. EPA understands that ignoring COC input from underlying sediments will more specifically assess surface sediment concentration changes that result from uplands and in-water sources. However, ignoring COC input from the underlying sediments will limit the model’s ability to predict actual post-construction conditions in the project area. In addition, the model assumes no upward porewater advection, and SAR Section 7.3 recognizes porewater advection to be a data gap. Understanding the relative magnitude of recontamination potential from underlying sediments compared to upland and in-water inputs could provide useful information for evaluating long-term attainment of RAOs. Revise the text to describe how recontamination potential from underlying sediments will be considered.	The model does not explicitly include contaminant loading from sediments underlying the modeled interval (e.g., upper 20 to 30 centimeters [cm]) via groundwater advection; however, it does account for interaction between depositing sediments and post-remediation surface sediment via mixing. It is unclear whether groundwater advection through contaminated sediment is a complete pathway for transport contaminants to surface sediments. The PDI Work Plan includes an initial survey of where groundwater may be discharging to SIB. Depending on results of that survey, more detailed assessment of groundwater discharge could be performed. If groundwater advection is found to be adding contaminant mass to surface sediments, this could be accounted for in the SEDCAM model by effectively increasing the contaminant concentration assigned to freshly deposited sediment to include an additional contribution from groundwater.	The response is mostly acceptable; however, it is unclear what data would be used to determine how much to increase the sediment concentrations in the model. Revise the SAR to clarify. In addition, clarify whether increasing the contaminant concentration assigned to the freshly deposited sediment will consider recontamination potential from underlying sources (i.e., CUL exceedances in sediment and/or porewater), and if not, how the assessment will evaluate recontamination that may occur from underlying contamination via advection, diffusion, mixing, or any other potential transport mechanism.

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2	1369	Section 2 SEDCAM Model, page A-2	Rephrase some of the terminology in the last paragraph in the section. In the context of numerical modeling, the terms “inputs” and “outputs” are generally used to refer to numerical inputs to and outputs from the model, respectively, rather than fate and transport processes represented in the model. In the context of the discussion in this paragraph, the term “inputs” should be replaced with “loadings” or “sources” and the term “outputs” should be replaced with “sinks” or “losses.” In addition, replace the term “boundary conditions” with “boundaries.”	Noted. Revisions will be made as requested.	The response is acceptable pending EPA's review of the revised SAR.
3	1369	Section 3 Model Approach, Inputs, and Assumptions, page A-2:	SEDCAM model parameters are subject to known sensitivities and complicating factors that potentially limit the ability to accurately predict post-construction sediment concentrations. Revise Appendix A to discuss parameter sensitivities and complicating factors and how uncertainty related to these issues will be addressed in the recontamination potential evaluation. Sensitive model parameters and complicating factors associated with SEDCAM include: a. Defining depositional areas for each recontamination pathway. Defining the depositional areas will influence the effect of the chemical mass loading rate assumed in the model. Some solids that are discharged to the project area may not ultimately deposit within an SMA boundary. The approach to defining these depositional areas should be further explained, including how the approach will address uncertainty. b. Estimating the bulk density of sediments present within the zone of deposition and bulk density of stormwater solids. Mass loading estimates are sensitive to bulk density of sediments and stormwater solids, which may vary depending on season and storm intensity. c. Estimated stormwater volumetric discharge. Mass loading estimates are sensitive to stormwater discharge volumes. Runoff volume estimate methods vary and are sensitive to land use assumptions. d. Effect of scour and redeposition of solids. The SEDCAM model does not account for chemical loss through scour. The nature of scour, particularly around outfalls, should be evaluated to account for chemical mass loss from the defined depositional area.	Appendix A will be revised to discuss complicating factors, uncertainty, and sensitivity to model parameters as follows: a. Depositional areas and the rates of deposition will be defined based on the results of hydrodynamic and sediment transport modeling for the various source pathways. This will include quantification of the sediment mass from a given source and the associated contaminant mass. Using bulk density, the sediment mass will be converted into a depositional depth for use in SEDCAM. b. The hydrodynamic and sediment transport modeling provides the mass and grain size distribution of sediment deposited at a given location over a specified time period (e.g., 1 year, 5 years, etc.). We expect that the bulk density of recently deposited sediment will be similar to the bulk density of existing surface sediments with the same grain size distribution (e.g., freshly deposited silt and clay would have a similar bulk density of existing silt and clay surface sediments). A sensitivity analysis will be performed to assess model sensitivity to these assumptions. Bulk density of sediments and stormwater solids are expected to vary depending on discharge conditions; however, the hydrodynamic and sediment transport modeling will be performed under both "typical" discharge conditions and extreme event conditions to assess the range of sediment deposition. c. Noted. d. Hydrodynamic and sediment transport modeling will include modeling of natural and anthropogenic scour and resuspension of sediments and will be used to help inform interpretation of SEDCAM model results.	The response is acceptable pending EPA's review of the revised SAR.
4	1370	Section 3.1 Modeling Approach, page A-2	The text states: “The model will be developed as a Microsoft Excel spreadsheet analysis and will be configured to output estimated surface sediment concentrations on a yearly time step for a 30-year period following completion of the RA.” Cap longevity is typically evaluated at 100-yr time horizons or longer. Revise the text to clarify why a 30-yr assessment is sufficient.	Note that use of SEDCAM is not proposed for cap modeling, and instead will be used to assess recontamination potential in areas where monitored natural recovery or enhanced natural recovery are the planned remedies. Typically, sediment concentrations predicted with SEDCAM approach a dynamic steady state within 30 years. If this is not the case with application of SEDCAM at SIB, then the modeled time horizon will be extended such that results approach steady state conditions.	The response is mostly acceptable. Expand the discussion to clarify how the assessment will determine if dynamic steady state is achieved after 30 years.
5	1370	Section 3.1 Modeling Approach, page A-2	In the last paragraph on the page, provide reference to or provide further detail on the sediment transport model that will be used to determine the relative contributions of solids from various sources depositing in the SIB project area.	Last paragraph of page A-2 will be updated to read: Numerical modeling will be performed using a 3D unstructured hydrodynamic and sediment transport model (Mike3 HD/Sand Transport/Mud Transport, or similar) to capture hydrodynamics and transport from upriver bedded sediment sources, outfall discharge sources, overwater sources, and resuspension/scour sources. Modeling will be performed on a Willamette River-wide scale, including appropriate portions of the Columbia River and Multnomah Channel that may be required based on locations of suitable boundary conditions data. The model will be validated using the proposed hydrodynamics measurements, and sediment transport input parameters will be provided by both data in the RI/FS, and data from the proposed SedFlume data collection. The modeling described in this text will be completed as part of the PDI, so the revision envisioned in this response will be informed by the results of that modeling work.	The response is acceptable pending EPA's review of the revised SAR.
6	1371	Section 3.1 Modeling Approach, page A-3	In the last paragraph in the section, provide reference to or provide further detail on the decision process to determine the specific sources that may need source reduction. Revise the text to state that the decision process is subject to further analysis and discussion with EPA.	Evaluation of sources that may need additional source reduction will be based on the technical feasibility of achieving source reduction and a comparison of the costs and source reduction benefit relative to meeting RAOs. It is expected this will be performed during RD and we agree that source control decisions are subject to further discussion with EPA.	The response is acceptable pending EPA's review of the revised SAR.
7	1371	Section 3.2 Model Inputs, page A-3	The basis for the assumed sedimentation rate of 1 cm/yr is not clear. As stated in the text, radioisotope data for the only core in the project area was deemed inconclusive. The 1 cm/yr appears to be based on two other cores; it is unclear where these cores were located. SAR Section 3 states that “as much as 1.5 ft of sediment accumulated in portions of the transition zone over approximately 10 years,” i.e., almost 4.6 cm/year. Therefore, if a model zone is in, or includes, the transition zone, a higher sedimentation rate may be needed. Furthermore, the stated range in sedimentation rates based on bathymetric differencing also does not allow for a spatially averaged interpretation of sedimentation rates. The text further states that sedimentation rates will be refined based on numerical modeling. Since sedimentation rate is one of the major inputs to the SEDCAM model, revise the text to provide additional information describing how sedimentation rates will be developed such that they are representative for each modeling scenario, including discerning sedimentation from different sources and accounting for intermittent deposition and scour that may occur within the modeling timeframe. Indicate what data, if any, are available to support the numerical modeling. In addition, since a large portion of the project area is subject to future maintenance dredging, the appendix should indicate how future maintenance dredging within the project area will affect long-term sedimentation rate assumptions used in the SEDCAM modeling scenarios.	Last sentence of Paragraph 2 in Section 3.2 will be revised to read: The sedimentation rate will be refined based on additional analysis of hydrographic surveys on a fine grid covering the project area, and results of numerical modeling simulations. At least 1 modeling simulation will evaluate resuspension and deposition of sediments resulting from dredging to determine sedimentation rates. Those results will be applied to the sedimentation rates used in SEDCAM. Different rates may be applied to different areas within SIB based on those results. Existing data to support numerical modeling includes bathymetric survey data for different time milestones over the past several decades. Other available data to support numerical data includes tidal fluctuations and river flow data from stream gauges.	The response is acceptable pending EPA's review of the revised SAR.

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8	1372	Section 3.2 Model Inputs, page A-3	The basis for the mixed layer depth of 5 cm is not clear. Mixed layer depths in numerical models are generally based on the depth of bioturbation (which is a function of the site-specific benthic community), or the depth of exposure for benthic organisms. The ROD Section 14.2 noted the biologically active zone is generally 10-20 cm and up to 38 cm based on sediment profile imaging data from the Remedial Investigation/Feasibility Study. Revise the text to discuss the basis for the mixed layer depth and how the recontamination potential evaluation will further consider surface sediment concentrations over the depth interval associated with RAO monitoring, as described in Appendix C of the RDGC (i.e., 30 cm) and consider performing sensitivity analyses for several depths supported by the ROD and for long-term performance monitoring surface sediment depth (e.g., 20 and 30 cm).	The basis for the mixed layer depth of 5 cm is cited in the text; however, we agree that it likely does not reflect active mixing depths at SIB. Consistent with the ROD and RDGC we will apply a mixing layer depth of 30 cm, and perform a sensitivity analysis using 20 cm. See Section 3.2 in Appendix A of the SAR.	The response is acceptable pending EPA's review of the revised SAR.
9	1372	Section 3.2 Model Inputs, page A-4	In order to perform a conservative calculation, loss by chemical and biological decay should be set to 0. Revise the text accordingly.	We agree with respect to metals and recalcitrant contaminants (e.g., PCBs); however, there is ample evidence that other contaminants (e.g., TPH and selected PAHs) undergo biochemical decay in sediment conditions similar to SIB. The sources and basis of selection of biological decay constants for selected RPCs will be provided in the revised SAR. SEDCAM modeling performed with biological decay will also be run without decay to assess model sensitivity to the decay term.	The response is acceptable pending EPA's review of the revised SAR.
10	1373	Section 4 Data Gaps, pages A-4 and A-5	Expand the discussion in this section to include sedimentation rates as an additional data gap. The discussion in Section 3.2 indicates that sedimentation rates are not well characterized in the project area. Since this is a major input to the SEDCAM model, it should be investigated further. Revise the text to discuss additional investigations and SEDCAM sensitivity analyses that can be performed.	See response to Comment 1371 above.	The response is acceptable pending EPA's review of the revised SAR.
11	1373	Section 4 Data Gaps, pages A-4 and A-5	Revise the reference to “hydrodynamic” to include “sediment transport” since the processes proposed to be further characterized in various sub-sections also requires a sediment transport model.	In Section 4, there are four (4) instances of the phrase "hydrodynamic modeling." Sediment transport modeling was also intended to be performed in evaluation of all potential recontamination sources. Therefore, in all four (4) instances, the language will be updated to read "hydrodynamic and sediment transport modeling."	The response is acceptable pending EPA's review of the revised SAR.
12	1374	Section 4.2, Riverbank and Overwater Sources,	See Specific Comment on SAR Section 6.4 regarding collection of under structure core samples to fill this data gap and revise the text accordingly.	Comment refers incorrectly to Section 6.4 and should refer to Section 6.3. See responses to comments on Section 6.3 (Comments 1317 through 1327).	The response is acceptable pending EPA's review of the revised SAR.
Editorial Comments on Appendix A					
1	1375	Section 8.6 Modeling of Surface Sediment Recontamination, page 8-3	Rephrase “freshly deposited sediment” as “depositing sediments” since it the concentration on the depositing sediments that is an input to the model rather than concentrations after depositing (which may be affected by mixing, decay, diffusion, etc.).	Noted and text will be revised as requested.	The response is acceptable pending EPA's review of the revised SAR.
2	1376	Appendix A, Section 3.1 Modeling Approach,	Review and revise the equation in this section. The placement of the “=” sign seems like it should be between Cp and the summation symbol.	Noted and text will be revised as requested.	The response is acceptable pending EPA's review of the revised SAR.
3	1377	Appendix A, Section 3.2 Model Inputs, page A-3	Revise “To” as “Two” in the fourth sentence in the second paragraph in the section.	Noted and text will be revised as requested.	The response is acceptable pending EPA's review of the revised SAR.
EPA Comments on Appendix B Contaminants of Concern in Surface and Subsurface Sediment of the Draft Sufficiency Assessment Report, Swan Island Basin Project Area, Dated June 2021					
Following are EPA’s comments on the HGL Contaminants of Concern in Surface and Subsurface Sediment, Appendix B of the SAR, prepared by HGL on behalf of the SIB Remedial Design Group and dated June 2021.					
Specific Comments on Appendix B					
1	1378	Section 2.0 Contaminants of Concern in Surface Sediment in Portland Harbor Superfund Site, page B-1	This section focuses on a discussion of background concentrations for certain metals. This discussion appears more relevant to Section 2.1 Metals. Move the text in Section 2.0 to Section 2.1.	Revision will be made as requested.	The response is acceptable pending EPA's review of the revised SAR.
2	1379	Section 2.1 Metals, page B-1	Revise the text to include a discussion of arsenic.	Comment noted. The intent of Appendix B was to provide summaries of presence and distribution of COCs that were not identified as RPCs. The presence and distribution of RPCs is discussed in Section 3.4.3 of the SAR. The introduction to this appendix will be revised to direct the reader to Section 3.4.3 for a discussion of RPCs.	The response is acceptable pending EPA's review of the revised SAR.
3	1380	Section 2 Contaminants of Concern in Surface Sediment in Portland Harbor Superfund Site and Section 3 COCs in Subsurface Sediment in SIB, pages B-1	Revise these sections to include discussion of the other COCs that are listed as RPCs for surface and subsurface sediment in Table B-1.	See response to previous comment 1379.	The response is acceptable pending EPA's review of the revised SAR.
4	1381	Figures	Revise the appendix to include figures showing the other COCs that are listed as RPCs for surface and subsurface sediment in Table B-1.	See response to previous comment 1379. Figures of COCs listed as RPCs are provided in the figures for Section 3 of the SAR.	The response is acceptable pending EPA's review of the revised SAR.
5	1382	Figure B-1e	This figure uses a different color scheme than the preceding figures. In the previous ones, pink represented CUL exceedances, and orange represented below the CUL. In this one, pink and orange both represent CUL exceedances. Revise the figures in Appendix B to have a consistent color scheme to facilitate comparison among figures.	Figures will be revised as requested.	The response is acceptable pending EPA's review of the revised SAR.
EPA Comments on Appendix E Site Specific Information for Upland Pathway Recontamination Evaluation of the Draft Sufficiency Assessment Report, Swan Island Basin Project Area, Dated June 2021					
Following are EPA’s comments on the HGL Site Specific Information for Upland Pathway Recontamination Evaluation, Appendix E of the SAR, prepared by HGL on behalf of the SIB Remedial Design Group and dated June 2021.					
General Comments on Appendix E					
1	1383	Representative Stormwater Data	Data that is not representative of post-SCM stormwater conditions should be removed from the SAR and discussion in Appendix E. Many of the data discussed were superseded by data that were collected after SCMs were implemented. Those post-SCM data are most representative of current discharges and should be used in the assessment of stormwater sources. For example, stormwater data were collected in 2016 and 2017 for Outfall M-2 to assess a wide array of site-specific SCMs that were implemented in the basin, but much of the discussion in Section 4.3.2.4 references data from 2007 that represent pre-SCM data.	Pre-SCM stormwater data for city outfall basins will be removed from the Appendix E discussion.	The response is acceptable pending EPA's review of the revised SAR.

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Specific Comments on Appendix E					
1	1384	Section 4.3.1.6 Sites in M-1 Drainage Basin, The Marine Salvage Consortium (Fred Devine Diving and Salvage), page E-21	The source control status described in this section does not agree with the status that is assigned in Table 4-1 of the SAR. The text in this section states that "According to ODEQ, the stormwater pathway from this 5.74-acre site is a complete (sic), but minimal migration pathway and adequate SCMs are in place and maintained at this site (ODEQ, 2016c)." However, Table 4-1 assigned this site a source control status of C(u) for stormwater indicating that sources are not sufficiently controlled. Table 4-1 should be revised to be consistent with the description of source control status provided in this section.	Table 4-1 will be revised accordingly. This facility discharges to the outfall M-1 drainage basin and has been assigned a NPDES-1200Z permit requiring ongoing stormwater monitoring.	The response is acceptable pending EPA's review of the revised SAR.
2	1385	Section 4.3.3.5 City M-3 Stormwater Solids Concentrations Relative to CULs, page E-32, Table E.13, and Figure E.4	The SAR does not establish whether or not there is a confirmed migration pathway for surface solids (i.e., soil) from the N. Emerson right-of-way to the project area. Remove discussion of these sample results from the SAR. Characterization of discharges from Outfall M-3 should be based on stormwater and stormwater solids data collected from the end-of-pipe. Also see Specific Comment on Section 9.3 of the SAR.	The discussion of these samples will be removed from the SAR text, table, figures and Appendices D and E.	The response is acceptable pending EPA's review of the revised SAR.
3	1386	Section 4.4.1 US Coast Guard Marine Safety Unit Portland (ECSI 1338), page E-43	The source control status described in this section does not agree with the status that is assigned in Table 4-1 of the SAR. The text in this section states that "Currently, the facility has a NPDES 1200-Z NEC suggesting that stormwater runoff is not a current source of RPCs to SIB," whereas Table 4-1 assigned the USCG MSU a source control status of C(u) for stormwater indicating that sources are not sufficiently controlled. Table 4-1 should be revised to be consistent with the description of source control status provided in this section.	Section 4.4.1 and Table 4-1 will be updated accordingly. The stormwater pathway was assigned "C" because although the site has a NPDES-1200Z NEC, no data was available after the system cleaning occurred to confirm that the cleaning eliminated sources. This site is also adjacent to contaminated sediment with RAL and PTW threshold exceedances. In addition, the riverbank has not been characterized.	The response is acceptable pending EPA's review of the revised SAR.
4	1387	Section 4.4.5 North Basin Watumull (ECSI 260), page E-44	The source control status described in this section does not agree with the status that is assigned in Table 4-1 of the SAR. This section indicates that ODEQ has issued an NPDES 1200-Z NEC for this facility, whereas Table 4-1 assigned the facility a source control status of C for stormwater indicating that sources are not sufficiently assessed or controlled. Table 4-1 should be revised to be consistent with the description of source control status provided in this section.	Section 4.4.5 and Table 4-1 will be updated accordingly. The stormwater pathway was assigned "C" because although the site has a NPDES 1200-Z NEC, no data was available to evaluate possible sources. This site discharges stormwater to a riverbank that has not been characterized and is adjacent to contaminated sediment with RAL exceedances.	The response is acceptable pending EPA's review of the revised SAR.
5	1388	Section 4.4.7 Port of Portland Property (SIUF OU3) (ECSI 277), page E-45	The source control status described in this section does not agree with the status that is assigned in Table 4-1 of the SAR. This section states that "ODEQ determined that implementation of BMPs have successfully minimized contaminants in stormwater, and no additional measures were warranted (ODEQ, 2013 and 2016a)," whereas Table 4-1 assigned the site a source control status of C for stormwater indicating that sources are not sufficiently assessed or controlled. Table 4-1 should be revised to be consisted with the description of source control status provided in this section.	Section 4.4.7 and Table 4-1 will be updated accordingly. The stormwater pathway was assigned "C" because although ODEQ determined that best management practices (BMPs) have successfully minimized contamination in stormwater, no post-cleaning data was available to evaluate possible ongoing sources. This site discharges stormwater to a ROD riverbank and is adjacent to contaminated sediment with RAL and PTW threshold exceedances in sediment.	The response is acceptable pending EPA's review of the revised SAR.
6	1389	Section 5.0 Overwater, page E-51	See Specific Comment on SAR Section 6.4 regarding under structure core collection and revise the text accordingly.	Comment refers incorrectly to Section 6.4 and should refer to Section 6.3. See responses to comments on Section 6.3 (Comments 1317 through 1327).	The response is acceptable pending EPA's review of the revised SAR.
7	1390	Tables E.1 and E.2	Riverbank soil screening should include screening against PTW, RALs, and CULs. Some of the ROD Table 17 CULs are missing (e.g., arsenic on Table E.1). Revise the tables accordingly.	Tables will be revised to include ROD Table 17 COCs, and riverbank soils will be screened against PTW, RALs, and CULs.	The response is acceptable pending EPA's review of the revised SAR.
8	1391	Tables E.9, E.10, E.12a, E.14, E.15, E.16a, E.17b	Indicate whether stormwater conveyance line cleanout and/or catch basin cleanout was conducted after stormwater solids sample collection.	The tables will be updated to note that conveyance line and/or catch basin cleanouts were performed after stormwater solids sample collection.	The response is acceptable pending EPA's review of the revised SAR.
9	1392	Tables E.8, E.11, E.12b, E.14a, E.14b, E.16b,	Indicate whether stormwater source control measures were implemented after stormwater sample collection.	The tables will be updated to note whether SCMs were implemented after stormwater sample collection.	The response is acceptable pending EPA's review of the revised SAR.
10	1393	Figures	Include figures illustrating stormwater data plotted on DEQ's rank-order curves, where available.	The revised SAR will include figures illustrating stormwater data plotted on ODEQ's rank-order curves, where available. The RD team will work with Dan Higgins to output data into ODEQ rank-order charts after the SIB database is created.	The response is acceptable pending EPA's review of the revised SAR.